

RESPONSE TO THE OFFICE ACTION OF FEBRUARY 26, 2003

I. Preliminary Comments

Claims 11, 15, 19, and 21 are amended herein. Claim 11 is amended to read "mixture of alleles," correcting a typographical error. Claim 19 is amended to remove an errant comma after the first occurrence of "interest." Claim 21 is amended to include a concluding period punctuation mark. These amendments do not add new matter.

Claim 15 is amended herein to include the phrases "and lacking 5'-flanking region" and "and lacking 3'-flanking region." Such compounds are disclosed throughout the specification. For example, see the diagrams of pages 19 and 20. Claim 16 is amended herein to clarify that the recited mixture consists essentially of polymorphic alleles representative of those which manifest a trait of interest. Support for this amendment can be found throughout the specification. Thus, these amendments do not constitute new matter.

II. Status of the Claims

Claims 1-10 are allowed.

Claims 11 and 17 to 26 stand objected to.

Claims 11, 12, 14, 15, and 21 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Morgante *et al.*, (WO 96/17082).

Claims 16 and 27 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Nelson *et al.*

III. Patentability Arguments

A. The Objections to Claims 11 and 17 to 26 Should be Withdrawn

As requested by the Examiner, claims 11 and 21 are amended herein to correct typographical errors. In light of these amendments, Applicant respectfully withdrawal of the objection to claims 11 and 21.

Claims 17-20 and 22-26 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant respectfully brings the Examiner's attention to the fact that (1) claims 22 and 25 are already independent claims and (2) claims 23 and 24 are based on claim 22. Therefore, because they are not dependent upon a rejected base claim, the objection to claims 22-25 should be withdrawn.

Furthermore, because claim 16 is patentable for the reasons set forth below, the objection to claims 17-20 and 26 should be withdrawn.

B. The Rejections of the Claims Under 35 U.S.C. § 102 (b) Should be Withdrawn

Claims 11, 12, 14, 15, and 21 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Morgante *et al.*, (WO 96/17082). Applicant respectfully requests reconsideration of the claims in light of the arguments set forth below.

Morgante *et al.* does not disclose a mixture or composition of claims 11, 12, 14, or 15. Each of these claims includes the transitional phrase "consisting essentially of." According to MPEP § 2111.03, "[t]he transitional phrase 'consisting essentially of' limits the scope of a claim to the specified materials or steps 'and those that do not materially affect the basic and novel characteristic(s)' of the claimed invention." (emphasis in the original) The mixtures and compositions of claims 11, 12, 14, and 15 are materially different from those of Morgante *et al.*

Use of the phrase "consisting essentially of" in claim 11 is intended to mean primarily composed of VNTR alleles. The vast majority of the fragments created by the combination of restriction enzymes in the Morgante *et al.* method would lack VNTR sequences. Thus, the mixture created by the Morgante *et al.* method would be primarily composed of non-VNTR alleles. In order to clarify the differences between the mixture of Morgante *et al.* and that of

claim 11, the Morgante *et al.* mixture is akin to the product of steps (a) and (b) of present claim 1; whereas the mixture of claim 11 is akin to the amplification product of steps (a)-(e). Thus, the Morgante *et al.* method does not produce the mixture of claim 11, which is enriched in a chosen VNTR sequence and their flanking regions on both sides, having an adaptor at each of its 3'-end and its 5'-end. Because the presence of the vast number of non-VNTR alleles produced by the method of Morgante *et al.* would materially affect the basic and novel characteristic of the claimed enriched mixture, Morgante *et al.* does not anticipate claim 11 (or dependent claim 12).

Regarding the rejection of claim 14, as pointed out above, the vast majority of the fragments created by the combination of restriction enzymes in the Morgante *et al.* method would lack VNTR sequences. Any single VNTR allele (being characteristic of those which manifest a trait of interest) and its flanking region that may contain an adaptor at each of its 3'-end and its 5'-end would be an extreme minority of the fragments within the composition produced by the method of Morgante *et al.* For the reasons provided above regarding the mixture of claim 11, the composition produced by the method of Morgante *et al.* would contain many components that would materially affect the basic and novel characteristic of the claimed enriched composition of claim 14.

Applicant traverses the rejection of claim 15. For the reasons stated above, the method of Morgante *et al.* does not describe a mixture of VNTR flanking sequences, said mixture consisting essentially of a representative mixture of 3'-flanking regions of a chosen variable number tandem repeat (VNTR) sequence, each member of the mixture carrying an adaptor at its 3'-end, and a representative mixture of 5'-flanking regions of a chosen VNTR sequence, each member of the mixture carrying the same adaptor at its 5'-end. However, amendment of claim 15 herein renders the rejection moot.

Although the subject matter of previous claim 15 was allowable over Morgante *et al.* Applicant amends claim 15 herein to clarify that the 3'-flanking regions and 5'-flanking regions are not contained within the same molecule. Applicant realized that the claim prior to amendment did not exclude this contingency.

Claim 21 is newly rejected as allegedly anticipated by Morgante *et al.* However, Morgante *et al.* does not disclose every step of the claimed method. Step (b) of the claim 21 recites "ligating to each end of each fragment an adaptor thereby forming a mixture of adaptor-terminated fragments in which each 3'-end is blocked to prevent enzymatic chain extension." Steps (c) and (d) recite "contacting a portion of the mixture..." The method of Morgante *et al.* does not produce or suggest a mixture of adaptor-terminated fragments in which each 3'-end is blocked to prevent enzymatic chain extension. Thus, Morgante *et al.* does not disclose the "contacting a portion of the mixture" of step (c) or (d). Therefore, Morgante *et al.* does not anticipate claim 21.

Claim 16 (and claim 27) stands rejected as allegedly anticipated by Nelson *et al.* As amended herein, claim 16 clarifies that that the recited mixture consists essentially of polymorphic alleles representative of those which manifest a trait of interest. As described above regarding Morgante *et al.*, fragmenting the genome does not produce a mixture consisting essentially of polymorphic alleles. In fact, such alleles would only form a minor portion of the mixture. Thus, by merely fragmenting the genome, Nelson *et al.* does not disclose the recited mixture of claim 16, which is enriched for polymorphic alleles. Therefore, Nelson *et al.* does not anticipate claim 16 (or claim 27).


CONCLUSION

For all of the foregoing reasons, Applicant respectfully requests reconsideration of the pending claims. Should the Examiner wish to discuss any issues of form or substance in order to expedite allowance of the pending application, she is encouraged to contact the undersigned attorney at the number indicated below.

Respectfully submitted,

MARSHALL, GERSTEIN & BORUN

By:



Thomas J. Wrona, Ph.D.
Reg. No. 44,410
6300 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606-6357
(312) 474-6300

June 26, 2003